Facts Every Hardware Man Should Know:

Making Crescent Tools To Stand Freak Tests

This is the third in a series of articles which aims to give interesting and worth-while side-lights into the history and character of some of the leading tools and tool makers in the hardware industry.

QUIETLY reposing in a desk drawer at the plant of the Crescent Tool Company, Jamestown, N. Y., are four battered "victims of circumstances" whose histories throw an interesting sidelight on the policies and methods of the Crescent organization.

One is a 6-inch Crescent wrench which went forth from the factory some time ago to find its proper niche in the activities of a busy world. It traveled by the usual course from jobber to dealer into the hands of a middle western farmer who, in a moment of absent mindedness, left it on the feed conveyor of a threshing machine, where it presently found its way through the cylinder.

What happened to the cylinder is not recorded in Crescent annals. What happened to the wrench—or rather what didn't happen—is plainly evident and was of sufficient interest to its former possessor to cause him to send it to the Crescent office. Instead of being pounded to bits it turned up still a wrench, still in one piece, even though twisted and dented most viciously by the whirling cylinder teeth.

Another wrench, an 8-inch Crescent, fell under the wheels of a street car out in California. Here again, though the steel is twisted and battered, the handle has withstood its rough ordeal without breaking.

There is an 8-inch Crescent wrench which was flattened between the steel rollers in a rubber composition plant. The tough steel has taken its new shape under the terrific pressure with hardly a crack showing.

The fourth witness is one of the new 019 wrenches. There is a certain jobber who, though located in the Northwest, seems to have picked up a Missouri disposition. At any rate, he fastened one end of the wrench so it could not give and bent the other end around at right angles. The outside "jacket" of specially hardened steel shows tiny shallow cracks while the tough "core" of the handle has bent to its new shape without a break.

Not Designed for These Tests

Now Crescent wrenches were not designed to go through threshing machines, to carry street cars, nor to ride between close-set steel rollers. But when these things do happen, the manufacturers welcome the opportunity they give to Crescent wrenches to show how well the plans and policies of their originator and designer have been carried out.

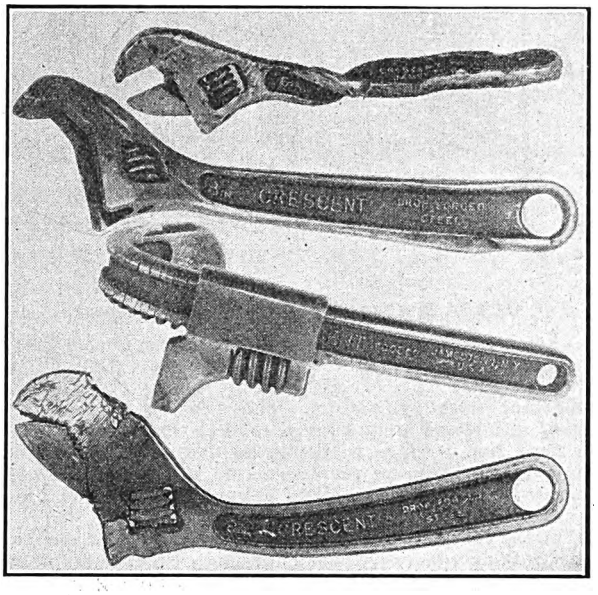
These plans and policies can be summed up briefly in the expression "Quality Tools." More specifically it includes the production of tools drop forged from special analysis steel for toughness, and hardened so that the surface will resist long years of wear.

Process is Example of Exactness

The process by which these tools are produced is an interesting study in the exactness achieved by modern scientific methods.

The Crescent Tool Co. is about to issue a book which will take the reader on an imaginary trip through the factory. It will give a hint of the care and accuracy prevailing throughout the entire plant from the die sinking department to the testing laboratory.

In the latter, for instance, each lot of steel shipped to the factory is tested to see that it complies with the formulas used for the various tools. A small fraction of one per cent variation in the carbon content either one way of the other would bring the tool below standard in toughness, hardness, or some other essential quality on which Crescent tool users have come to depend.



Wrenches that have "proved their mettle."

The six-inch Crescent at the top finished its long days of service by going through a grain thresher.

The eight-inch Crescent just below was run over and fatally injured (but by no means mangled) by a heavy all-steel street car.

An inquisitive jobber put the new No. 019 to this torsion test to see how far it would bend without breaking. He was unable to determine.

Although the bottom wrench was run through the calendar sheet rolls at an Ohio rubber plant, it plainly proved that it lacked rubber's accommodation.

Important Hardening of Dies

On the correct hardening of dies used in the hammers which shape the tools in the forge shops depends the length of service die blocks will give. The steel must be of exactly the right analysis, the dies must be accurately cut, and the die must be correctly hardened. All this has its bearing on the cost and quality of the finished wrench, plier, or screw driver for accurate dies produce accurate forgings and the more tools produced per die block, the lower the cost per tool.

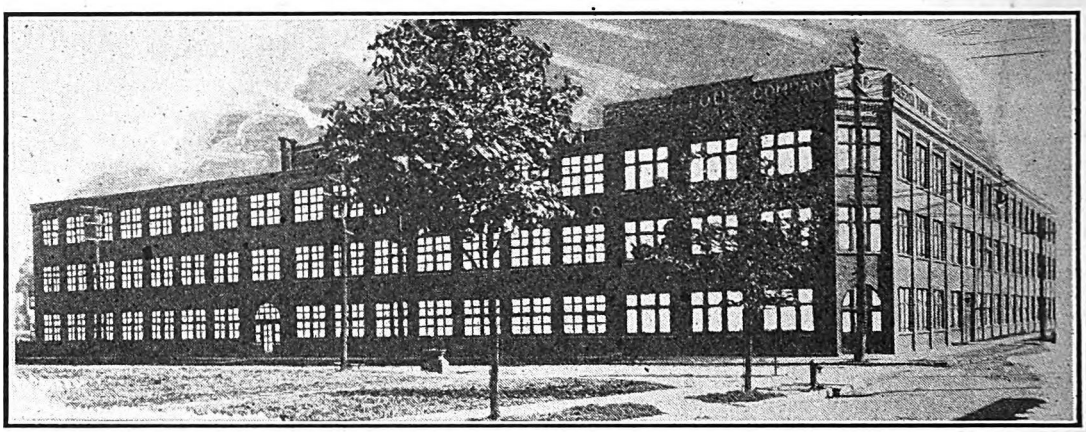
When these carefully made die blocks have played their part, the forgings are then ready for the other processes which help to make Crescent tools the sturdy, dependable, long-lived working units so well known to mechanics and toolusers all over the world.

Cut Off the "Fins" Before Pickling

The thin "fin" or "flash" left where the two halves of the die come together is cut off after which the forgings are "pickled" and then tumbled in revolving barrel-like containers to remove the scale.

In the case of wrenches, the next step is rolling to smooth the handles. Pliers are struck into shape and knurled. After the machining operations such as drilling holes or milling the jaws of pliers, the tools are given a rough grinding to remove roughness from the forging and to take off the burrs caused by the various machining operations.

Digitized by Google



THE PRESENT CRESCENT PLANT AT JAMESTOWN, NEW YORK

Careful Hardening and Tempering Process

After that the tools are ready for hardening. They are hung on conveyors which carry them through a furnace kept at a certain heat by means of frequent checking with pyrometers. This heating hardens the steel and closes up the grain so that the tool presents a hard firm surface to the grate and grind of every-day wear. They are then re-heated to the proper temperature and drawn in oil to temper the steel and prevent brittleness.

In the case of wrenches, there is still another step, a carbonizing process, which impregnates the metal with carbon and adds toughness. This carbonizing process has a lot to do with the refusal of Crescent wrenches to snap off and show a clean break when accidentally subjected to such tests as the threshing machine test, the street car test, or the bending test.

With all this toughness, Crescent tools are far from being soft, as anyone can easily prove by attempting to file them. And this combination of a hard wearing surface with inside toughness is what the Crescent Tool Company has worked for years to obtain. It is one of the chief reasons for the showing made by Crescent tools subjected to unusual tests.

Same Care and Completeness in Finishing

Having gone this far through the plant, the visitor is not surprised to find the same sort of completeness and thoroughness in other departments.

Plating, polishing, and finishing, done by highly paid experts, gives Crescent tools the fine appearance that makes them attractive on the counter or in the window.

Box Making and Printing Departments

The same thoroughness applies elsewhere. The plant is equipped with a complete box-making outfit as well as a print shop. All the boxes used for Cresent tools are printed and made up right in the factory. Much of the material which helps jobbers and dealers spread information to the public regarding new developments in the Crescent line also comes from the print shop.

Complete though it may be in its policies and processes, the Crescent organization is not satisfied to let things rest. An experimental and research staff is constantly busy seeking ways to improve the company's products, to simplify manufacturing methods and to reduce costs. Many of the company's most important patents are on production machinery.

Hearty Welcome to Trade Visitors

Visitors to the Crescent plant find a hospitable atmosphere in spite of the busy clanking of the drop forges and the rumble of heavy machinery. The jobber or dealer who wants to see for himself how Crescent tools are made is promised a hearty welcome. And seldom can anyone find an experience as fascinating as that of watching dull looking steel rods take shape, develop, and come forth as bright, shiny, useful Crescent wrenches, Crescent pliers, and Crescent all-steel screwdrivers.

Digitized by Google